



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

09/237,128

01/25/1999

FRANK KASTENHOLZ

AGM-002

9585

44987

7590

11/09/2004

HARRITY & SNYDER, LLP
11240 WAPLES MILL ROAD
SUITE 300
FAIRFAX, VA 22030

EXAMINER

HO, DUC CHI

ART UNIT

PAPER NUMBER

2665

DATE MAILED: 11/09/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/237,128

Applicant(s)

KASTENHOLZ, FRANK

Examiner

Duc C Ho

Art Unit

2665

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 July 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 3-5,7,10,11,15-18,21-24,26-30 and 32-34 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 3-5,7,10,11,15-18,21-24,26-30 and 32-34 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. Claims 32-34 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Regarding claim 32, the limitation "retrieving, from a lookup element stored in a storage location of the storage locations, multiple bits that select the first set of bits from all of the bits contained in the header data" lacks support from the specification. The same remark applies to claims 33-34

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102(e) that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

3. The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application

being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

4. Claims 3-5, 21-23, and 32-34 are rejected under 35 U.S.C. 102(e) as being anticipated by Przygienda et al. (US 6,563,823), hereinafter referred to as Przygienda.

Regarding claim 4, Przygienda discloses multi-resolution tree for longest match address lookups. Binary bits from the header of the packet with the leftmost bits of an IP address giving the location of a particular network, while the location of a network device increasingly specific as the address reads to the rightmost bit, see col. 2, lines 3-54. In other words, these leftmost bits "124"-fig. 1 could serve as a first set of bits for a selected location in the routing table, and the information "124" in turns is used to forward the packet toward the destination.

receiving header data of a network layer packet (a forwarding device receives a data packet with header having an IP address "124,13.7.5" shown in fig. 1, see col. 2, lines 57-59);

selecting a first one of the storage locations based on a first set of bits contained in the header data (a match preference "3"-fig. 1 of the routing table is inherently selected as a first location basing on a first set of bits "124" contained in the header data, see col. 2, lines 55-64); *and*

executing an instruction at the first selected storage location (the forwarding device uses a lookup algorithm to determine whether the matching prefix "124" of the selected location "124.X.X.X" matches the longest match rule. If "124" isn't the longest match, the algorithm inherently continues to search for the next longer matching prefix)

selecting a second one of the storage locations based on the executed instruction and a second set of bits contained in the header data (a second match preference "2"-fig. 1 of the table is inherently selected as a second location basing on a second set of bits "124.13." contained in the header data, see col. 3, lines 1-2);

selecting a third one of the storage locations based on contents of the second selected storage location and a third set of bits contained in the header data (a third match preference "1"-fig. 1 of the table is inherently selected as a third location basing on a third set of bits "124.13.7." contained in the header data, see col. 3, lines 2-10).

Regarding claim 5, the packet is an IP packet, see col. 2, lines 57-59.

Regarding claim 3, since the prefix in the third match preference is the closet match to the address "124.13.7.5"-fig. 1, the forwarding device will use the forwarding information associated with this prefix to route the packet to its next destination.

Regarding claim 21, this claim has similar limitations as claim 4. Therefore, it is rejected under Przygienda for the same reasons set forth in the rejection of claim 4. The forwarding engine is inherently used in a router for forwarding IP packets to destinations.

Regarding claim 22, the router used in Przygienda should have information regarding the input ports and interface structures on which IP packets arrive.

Regarding claim 23, the interface structure of the router used in Przygienda should have algorithms for directing the forwarding engine to access the first match preference "3"-fig. 1 of the routing table 16.

Regarding claim 32, the algorithm used for the longest matching rule is capable of retrieving the multiple bits such as "124" among the "124.X.X.X".

Regarding claim 33, the algorithm used for the longest matching rule is capable of retrieving the multiple bits such as "124. X" among the "124.X.X.X", that selects the second set of bits.

Regarding claim 34, the algorithm used for the longest matching rule is capable of retrieving the multiple bits such as "124. 13. X" among the "124.13.X.X", that selects the third set of bits.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103© and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 10, 7, 11, 15-18, 24, and 26-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Przygienda, in view of Tsuchiya (US 5,353,283).

Przygienda discloses all claimed limitations, except a first entry in a first forwarding lookup that stores a first instruction, and the second entry in a second forwarding lookup that stores a second instruction

Tsuchiya discloses a general Internet method for routing packets in a communications network. When a packet is received at an intermediary node, the intermediary node routes the packet by selecting a forwarding table. Then the intermediary node retrieves the indexed forwarding table entry, wherein the forwarding table entry may have an appropriate instruction stored therein for causing the pointer in the packet header to point to a different identifier, see col. 4, lines 21-26.

One skill in the art would recognize the advantage of using Tsuchiya's teaching of storing an instruction at an entry in a forwarding table into the system of Przygienda in order to provide direction such as causing the pointer in the packet header to point to a different identifier.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine Przygienda with the Tsuchiya's teaching .

The suggestion/motivation for doing so would have been to provide direction such as causing the pointer in the packet header to point to a different identifier.

Therefore, it would have been obvious to combine the Tsuchiya with Przygienda to obtain the invention as specified in claim 10.

Regarding claim 7, in Przygienda an algorithm is written for the longest match rule which requires no further search if the prefix of the second match reference "2" is a

longest prefix, and the forwarding device will use the forwarding information associated with this prefix to route the packet to its next destination.

Regarding claim 11, the forwarding device of Przygienda may be used in a device which includes an Application Specific Integrated Circuit (ASIC), wherein the searching and forwarding functions are capable to be executed within the ASIC.

Regarding claims 15, 24, and 29, these claims have similar limitations as claim 10. Therefore, they are rejected under Przygienda-Tsuchiya for the same reasons set forth in the rejection of claim 10.

Regarding claim 16, in Przygienda a processor is inherently included in the forwarding controller in the forwarding device having the table in figure 1 such that the processor's function is to provide algorithms for searching and forwarding.

Regarding claims 17, and 26, in Przygienda the first match preference "3" in the table of figure 1 is indexed by more than a byte of bits.

Regarding claim 18, the first match reference "3" in the table of figure 1 is indexed by more than two bytes, see col. 2, lines 4-30.

Regarding claim 27, in Przygienda the packet inherently contains a header, and the information from the header is inherently extracted.

Regarding claim 28, in Przygienda the data packet is the IP packet.

Regarding claim 30, in Przygienda an algorithm is written for the longest match rule which requires no further search if the prefix of the second match reference "2" is a longest prefix, and the forwarding device will use the forwarding information associated with this prefix to route the packet to its next destination.

Conclusion

8. THIS ACTION IS MADE FINAL NECESSITATED BY THE AMENDMENT.

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTHS shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136 (a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Duc Ho whose telephone number is (571) 272-3147. The examiner can normally be reached on Monday through Friday from 7:00 am to 3:30 pm.

If attempt to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy Vu, can be reached on (571) 272-3155.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (571) 272-2600.

The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2665

10. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Patent Examiner

A handwritten signature in black ink, appearing to read "Duc Ho", with a stylized flourish at the end.

Duc Ho

11-02-04